

# AVIATION

*The Oldest American Aeronautical Magazine*

MARCH 8, 1926

Issued Weekly

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The British Aircraft Carrier, H.M.S. Furious

(c) Photograph

VOLUME  
XX

## SPECIAL FEATURES

NUMBER  
10

EXPERIMENTS WITH AN AIRPLANE ARRESTER  
CARBURETORS FOR AIRCRAFT ENGINES  
THE AIR SERVICE RADIO BEACON

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225 FOURTH AVENUE, NEW YORK

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# AVIATION

VOL. XX

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## Progress Toward Safety

THE SAFETY record of the Ransome engine has shown steady progress. More pilots are being flown and more passengers are being carried with fewer accidents than ever before. The progress has been due to better planning and to better care and maintenance, as well as to the improvement of planes. There would undoubtedly have been more rapid progress in the later direction had the engine been able to keep their equipment as soon as safer equipment made its appearance. With the introduction of the multi-engine plane and aerodynamic design which made stalling difficult, the progress may be expected to continue at an even more rapid rate.

In this country, there are no reliable accident figures available but it can be said, with little fear of contradiction, that there are less accidents with the planes which are now being built than with the war surplus planes. Whether this progress is going to be sufficient to make air travel extremely popular, is a matter of the utmost importance to all connected with aviation. The air transport lines, with their perfect trimmings, extensive ground organizations and their planes manned by expert pilots and with all necessary safeguarding arrangements, will probably obtain sufficient safety along present lines of development and their planes of progress will stress efficiency of operation.

The unimproved airplane which will come into a field which will correspond to that of the automobile, possibly must be developed along different lines. Here, safety and simplicity of operation will be even more important than the weight of the load which can be carried per horsepower. It is probably possible that a radical departure from present practice of airplane design may be necessary. The biplane theoretically fulfills the necessary requirements but, up to this time, no one has been able to work it out successfully. The Aéro file is a logical development and there are other fields of research which are worth considering. Flying is too modern and young an art to admit that present designs are even fundamentally correct and pure research along many different lines should be encouraged.

## Aeronautical Development

THE GENERAL lines of this nation's aeronautical developments along the political line have been far more conservative than much of the talk last summer would indicate. If Congress succeeds in passing any legislation, such as is expected and to contain any radically new departures such as a unified air service. The Navy five year program would indicate that manufacturers will receive a steady and large volume of business than hitherto, but that there would be no extraordinary business. Expectations by the President indicate that he favors aviation but does not wish under con-

ditions. This will be a disappointment to many, but there will realize that the most important thing is to have the aviation industry on a really sound basis. The winter's discussion and proposed laws indicate that Congress has somewhat profited by all the talk that went on last year and that it can reduce the needs of the industry.

Readers of Aviation realize that numerous expansion will probably be the development of service organizations during the next few years. Of course, no one wants to be in an industry or a company which is not expanding and there is no reason why they should be. But the progress of the industry will depend on the extra effort which it can put into developing aviation. Military aviation will not progress far beyond its present status of an adjunct and no security to the other service, unless it can continue to demonstrate its ability to act as a powerful, independent offensive force. A great effort must be put forward by the personnel of the air service and by the industry itself to bring this about.

The same thing applies to developments in civilian aviation. Expansion in this direction has seemed to be a speculation, but it still needs much effort and capital investment. It would seem as if the aeronautical industry is gradually getting onto a sound basis, but that its further expansion would depend very largely upon its own energy and initiative, across aviation.

## Foelhardy Stunts

THE DEVELOPMENT of commercial air transportation has to contend with quite enough adverse and unwarranted movements publicly without the addition of even relating to the shortcomings of foelhardy stunts. It was recently reported that, upon the verge of a flight, a French pilot, a lieutenant in the French flying service, engaged to fly in an airplane under the Eiffel Tower between the four pylons upon which the huge structure stands.

No useful purpose could possibly be gained from such an undertaking with the exception of personal "glory" for the pilot and the increase from the distribution of moving pictures of the stunt. On the other hand, such stunts might, and actually was, done. In the first place, the tower is surrounded by wires and cables and, apart from hazard to the pilot and airplane, it is conceivable that the safety of the Eiffel Tower itself might be seriously jeopardized if one of its four supporting pylons was damaged.

The stunt ended in failure, the plane and pilot being burned as a result of having hit one of the cables wires and yet another piece of adverse publicity threatened aviation. The film of the flight which, of course, showed the whole incident even to have been unsuccessful in this country had the French Government not been far capital enough to conclude there at the last minute, even after the ship carrying them to the country had left port.





not in a short distance. The line of vision passing from the surface at the center of gravity through a point in the rear, to the breaking apparatus in the rear, inside the tail in correct position, and points any tendency to oversteer.

A thorough investigation of the market possibilities for this device was made before proceeding further. The Navy Department was not interested at this time, and the device was not received from officials of the Air War and other potential subscribers. As a result, it was decided to develop the general principle of the device with the slightest expansion possible, and the construction of a complete experimental apparatus was undertaken. The second piece was to use a cable, standard parallel to the field and at right angles to the path of flight, transmission of a complete experimental design, as the tail breaking apparatus. Later, it was decided that with a rigging would not give the method sufficient trial, and a steel drum was constructed and fitted with extension levers, to obtain results concerning the cable, as well as a steel. This construction required a rather complicated rigging, since powerful shafts (about 100 lbs.) had to be secured, across the shaft of the drum, in order to take up the resistance of the cable of the drum from one end to the speed of the plane in the manner of engagement. Furthermore, means had to be provided for the release of the elastic member before the airplane came to rest, so that it might be pulled back and twisted. That it seemed wise to use the cable arrangement thus to experiment with wire, twisted and untwisted forms, to learn, before the feasibility of the present method had been determined.

#### The Airplane Tackle

The pole was pulled along the side of the chassis, the lowest point in the airplane's structure, as far as it would extend some distance below the chassis, at an angle of 30 deg. to the horizontal, and still not be at unequal length. This required a separate mechanism from the back to the left of the pole for the appliances of the extending device, which was provided by a cable. The back was held in a clamp at the free end of the pole. Upon engagement the back was reared from the clamp and the lever failed in a condition of pulling the back and ground cable into engagement, was subsequently returned to the cooperative position, parallel to the chassis. These appliances showed that the slight weight in the horizontal, for such this pole apparatus was designed, to be necessary. As the device is now used, the pole is pivoted at a point on the outer side of the chassis, about midway between the wheel and the tail, and the cable fastened to its free end at all times. The pole itself connects the rotating face from the back to the chassis.

Early in August, 1935, the apparatus was completed with the exception of some details depending upon the discussion of the surplus to be used for the test. The Navy Department became interested and agreed to supply an airplane and other facilities for a demonstration. The test was interrupted by a fire at the Anacostia D. C. Naval Air Station, which destroyed the airplane and damaged the apparatus. The repair of the apparatus was undertaken at the Naval Aircraft Factory in Philadelphia and was completed in August, 1936. Only one change in design was made during the repair of the apparatus. The lever had originally been designed for manual operation during the demonstration. A simple rigging, consisting of a block supporting the handle and an arrangement to be triggered by the cable leaving the drum, was now added to enable the broken extension.

#### The Ground Apparatus

The ground apparatus was set up on the edge of Bolling Field, Anacostia, D. C., in September, 1935. It was located on a plot of ground at the edge of the Anacostia River which was about four feet lower than the flying field. This location provided the plane to be driven toward the apparatus from across the river with the wheel of the plane about on a level with the tail and yet allowed distance for the pole, which extended two or three feet below the chassis. The cable loop to be engaged was set at 20 ft. below the tail end of the back and covered rear, which marked the edge of the field. The broken member was located on the other side of the loop

at about forty feet distant. On the field itself, four poles, two feet high, were set up at the corners of a 180 ft. square. Between each pair of poles a string was stretched at right angles to the path of flight and a faded sheet of newspaper was pinned to its center. This gave the pilot two signals at the level of the eyes when seated in the airplane at the correct elevation for engagement and driving on line with the path of flight. If the pilot flew through the newspaper, no danger was done. These lights proved a great assistance and allowed the pilot to permit his height and position with the greatest accuracy in speeds of 50 to 60 m.p.h. over uneven territory.

#### Fast Test Flights

On the first test, on Sept. 13, the airplane engaged the cable loop and was hoisted and returned to a speed of approximately 30 m.p.h. when the cable moved to the plane at 40 ft. From on, everything went as planned, with the exception, however, that the cable was not twisted. On the next trial, in October, something went wrong at the broken, the cable parted



The ground apparatus. One pole of the loop one in one held up by the eye of study. The body from the left end of the wire and the cable from the right end of the wire one in one from across the river.

and the plane suddenly returned from the bottom, hauled along over uneven ground, went up on its nose and pointed down as usual before it ran back on the landing chassis. An investigation revealed that the broken wire was under applied. One additional test necessary refinement caused the cable, which was the wheel and the tail, to be permanent closed, to be broken one in falling, so that the broken would be applied cable gently. The pump was of poor construction and had tilted over at its upper base of travel so that it prevented the handle and lever falling and applying the brakes. The steel drum, meaning well, rolled out of the cable which wound on a program and tied the cable up short. The second machine, however, in many cases now serves as a pointer pattern showing the position of the airplane to a rotating drum equal to three times its weight.

By Oct. 15, the device was repaired and, on that day, the plane was flown in the first test. The apparatus was set as intended and the airplane was engaged while in flight at a distance of about thirty feet from the edge of the landing field. The low in speed and returning power due to the returning force applied brought the plane down to a guide landing. The plane was brought to a stop in the distance of 120 ft., following engagement, 112 ft., following the application of the brakes.

The airplane used was an Anacostia 30-H engine converted to a lead plane by replacing the piston with a lead piston. It had a stalling speed of less than 35 m.p.h. At the time of engagement the flying speed was shown to be 50 m.p.h. by the air speed indicator. A higher speed would have made it difficult to assist the tendency to climb. The broken member landed in but 20 ft. of what a collection had shown to be their capacity and the capacity for which the apparatus was designed. It had been the writer's intention to increase the landing in maximum trials, but the Navy Department was not in a position to do so, as the Anacostia 30-H engine was not of this method, and desired the demonstration ended.

## The Air Service Radio Beacon

Significant Radio Development Enables Accurate Airplane Navigation in Fog and at Night.

A UNIQUE METHOD of aiding night navigation, known as the Radio Beacon, has been developed by the Radio Laboratory at McCook Field, Dayton, Ohio. All of the equipment for obtaining directional characteristics is automatically with the transmitter at the ground station as that no special equipment is needed for the reception of the beacon signals other than the standard aircraft receiver which is part of the radio equipment used for the two-way communication between aircraft, so, between aircraft and ground stations.

During the war, radio direction finding was used, to some extent, on large bombing planes. The method used, however, was entirely different from the radio beacon, in that a loop was used for receiving, while the radio beacon utilizes a system of crossed loops for transmission. Two methods of loop reception were used. One made use of a rotating coil mounted in the fuselage, while the other used two fixed coils, one formed about the motor bay struts and connected as series and known as the fore and aft coil, and the other formed around the fuselage and near the struts so as to be at right angles with the fore and aft coil and the fore and aft coil. Both of these methods utilized special receiver and required the services of a specially trained operator and navigator.

It is quite distinct that such special equipment would be necessary for use as a similar aircraft while the pilot would be required to operate the radio set in addition to his other duties. Therefore, the present system of directional transmission was developed so that it could be used by any type of equipment as aircraft, thus, simplifying the installation as well as the operation of this equipment.

#### Radio Beacon Station

The Air Service experimental beacon station is located at Wright Field. Detailed space is not available for the task to be carried out at the Engineering Division, McCook Field. The station consists of two transmitter loops, erected at right angles to each other. These loops are 72 ft. high and have a base 300 ft. long. Each loop is constructed in a rectangular shape and is connected to a transmitter. The transmitter is a device, used in transmitting (also in receiving), for obtaining the proper current values in each loop by means of which the resultant field may be shifted at will. The power for the two transmitters is obtained from a five kilowatt constant speed set which is located in the main building at the motor generator and powerhouse. The type of transmitting set used in special cases may be shifted at will. A single antenna is available but a radio telephone set, such as is used for broad-

casting, would be preferable as that conversation with the pilot while in flight could be accomplished.

The present radio beacon operates on a wavelength of 1680 meters. The transmitter is set for any desired course by changing the position of the turning coils this is equivalent to actually turning the large outside loops. Two signals are continuously transmitted on the two loops by means of an automatic key and relay. Interfering characters are cut out on the flow of the automatic keying device, which corresponds to "A" and "N" as "U" and "E" in Morse Code.



U. S. Air Service Beacon

Group Policy and Automatic Key of the Radio Beacon

Then, there is an interlocking arrangement when flying along the course, that is, the pilot brings to long his course as the direction of the transmitting beacon bears certain signals to the right or left of the course, these signals have the character of the Morse, "E" and "U", respectively. On the course, when these two interfering signals are of equal intensity, a third signal is formed, the resultant of the "E" and "U" which is a continuous and continuous sound, such as the Morse, "X". Hearing this continuous sound automatically, the pilot is assured that he is on the correct course. If the sound becomes broken into either of the two signals before mentioned, he knows he is to the right or left of the course and must correct that by changing his plane to the right or left until he hears the constant sound again.

Several interesting flights have been made by pilots from McCook Field, who have flown out and purposely lost themselves, when no known signals at their early guide in returning home. With a radius of 500 miles, these experiments have repeatedly been successful. An interesting test flight



U. S. Air Service Beacon

The Air Service Radio Beacon at Wright Field, Dayton, Ohio













## AIRPORTS AND AIRWAYS

### Cleveland News By J. B. Davis

The big Ford lounge at the Brookpark Field is taking wonderful shape and, no doubt, will be ready for use by March 1. The Ford and Air Mail men are keeping their schedules up as well as the pace of some very hot engines.

Ralph Thomas, the Cleveland Field, is growing at last and will be, for four or five days, and he'll be a big engine in his standard. His remarkable winter drive is doing some very fine work, such as maintaining and engine building. The best up all very good machine.

Till Wink is doing some trick course, such as nobody has seen before. Joe Dinkels, the Original Flying Dutchman, is getting on B.V.A. into wonderful shape. This past season to be the last year to aviation to these parts, as several of the boys have some nice contracts under their belts already.

### Moline, Ill. By W. B. Miller

Articles of incorporation have been signed by E. K. Campbell, Gen. Delapierre and Dr. C. C. Shaw, all of Moline, for the Campbell-Delapierre Airplane company which will succeed the old Campbell Airplane company. The project is being set up to Springfield, Ill., for approval of state officials. The three owners have agreed to start Campbell as

president and general manager, Delapierre as treasurer and Dr. Shaw as secretary.

Mr. Campbell's status as president will mean that the company will continue to give the community the same efficient service it has given in the past. Delapierre, Campbell and Shaw have been able to place Moline on the aviation map of the United States, the big being mostly responsible for placing Moline on the new Chicago-Moline air mail route, by means of the first flight in spite of lack of interest on the part of the people, they started on air field and maintained it. Now the Chamber of Commerce is quickly looking air development locally, and the people are also in the future of our profile.

The firm holds a long-term lease on the field of eight acres, which will be known as the Shaw or the Moline Airport. The lounge, which will accommodate the mail planes, has been completed ahead of schedule and is ready for flight. It is one of the best on the whole route.

### Chicago News By Geo. Egan

The Tuckey Aircraft Co. is constructing two complete hangars at the Glenbrook Field. One of them is 60 ft. by 80 ft. in size and will house the shops of Western Air Transport, Inc. This shop, 70 ft. by 110 ft., will be used by the Robertson Aircraft Co. of St. Louis to house their air mail shops, and part of it will be used by the Tuckey Aircraft

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The airplane business has been pretty good during the last couple of weeks around Chicago. The Victory company sold one of their Victory Sports to O. B. Young of the Chicago Aeronautical Service Co. They also sold a small two place job with Liberty 6 engine to Miss Caldwell and another two place plane with Liberty 6 engine to Art Phillips, a Hudson River dealer in this city. Francis Sharkey, a student of the Hush Airplane Co., has bought an GOS 3/8 Scout from Leiferm, Cleveland.

The Hush Airplane Co.'s student business has been increasing right along and the company is, at this time, enjoying the greatest student business in its history.

### Miami, Florida

The Rogers Air Line, the chief line of operation during the winter of which is Miami, report a good season so far. December was a big month. During January, there was much weather but business picked up again in February. The Rogers Air Line are now serving Florida, south of which is at Palm Beach, up at Sarasota, while the Air Line at Miami. Harry Rogers, Eddie Winters, George Cobb, George Fennell, Ed Gethen and Bob Moore are the pilots for the winter and there is probably no group of commercial flying boat pilots who have had an equal amount of experience. Harry Rogers has been operating independently since the Aero Lancia under his own, careful supervision of the plane and choosing of good pilots, which is commercial work, he has built up a good reputation and an excellent business. In the spring the company will move to Long Beach, where they will conduct their planes and equip several of them with high speed wings.

The Florida State assembly has passed some rather strong laws for the licensing of pilots and registration of planes. These laws mean the removal of many of the established pilots who are facing competition from new service planes which are not kept in good condition.

### Santa Monica, Cal.

The Life-Hart Aviation Corp., of Santa Monica, Cal., which has just recently taken delivery of a D-4 and an OTS Travel Air plane from Wichita, announces that they are located at Clover Field, where, in addition to the service airplane, they will have a general aviation. Passenger flights and commercial service parties will be actively carried on.

Frank Clark, with his Hush-Curtiss and Eddie Krenzel, with his KX monoplane, both said in the next week enough for Republic Airways, the regular service, who was held at an in big risk during the recent storm. Upon their return, Clark and Krenzel reported landing Denny safe in Port of Bismarck, Mexico.

The Life-Hart Aviation Corp. have applied the agency for the Travel Air planes on the Pacific Coast.

### Airway Marker

Aviation is making the ground appearance of gas plants, according to the American Gas Association. Officials indicated with no reaction that as Malaga has started a movement which may result in using big huge gas balloons, which are fixed in every city, on landmarks and guides.

Many the Malaga flying field there is a new gas plant, equipped with a "retrograde type" gas holder. The retrograde holder does not come up and down according to the amount of gas in the holder. When the tank was finished, aviation men, used the company themselves to paint the holder a bright red, instead of the steel gray, and equipped that a white arrow be painted on the top to direct attention to the flag field. If the need arises, this arrow may be thought lighted as a guide to night time.

### Pickers, Ohio

The new Seaford owned by the Eagle-Picher Lead Company and piloted by Van Gogh is making more trips these days to deliver news in the Eagle-Picher office across the lake, when it comes to a short business, a car





# Where to Fly

## MEMPHIS

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# PUBLISHER'S NEWS LETTER

An interesting subject came up in the debate on the Treasury appropriation bill. A section of the bill gave permission to the Secretary of the Treasury to exchange surplus Liberty bonds now owned by the Treasury Department for completed new power boats for the use in the governing and deterring violations of the customs laws and the prohibition act. Here is a new use for the existing people to revitalize. After all that has been said about the large amount of money spent during the war for aircraft and engines, it was seriously proposed to use some of the results of this expenditure to cause men to prosper by exchanging motor for motor boats. Carry that a little farther and we will have the Labor department swapping surplus guns for automobiles, the Department of Agriculture exchanging lumber for lawn mowers and it is not beyond the scope of imagination if stretched far enough to conceive other very practical steps that the Postoffice Department might make. Fortunately, it was struck out on a point of order.

The New York Times, which is usually very accurate, printed the following advertisement in an editorial recently:

When an automobile engine stops, you stop out on the ground and stay there dependent on temper and early assistance. When an airplane's engine stops—well, there is a chance of reaching the ground safely, but usually you come down with a crash.

No aviator will admit the accuracy of this description, and none of them looks forward to a crash landing. But the description is true. The aviator who does not know the ground is not an aviator. The aviator who does not know the ground is not an aviator. The aviator who does not know the ground is not an aviator.

The only way to stop the continual repetition of such comment on flying is for pilots to write to the editor and tell them that they are wrong. If you wish to see your share written in the Editor of The New York Times and tell him that he is wrong. The more letters he receives the greater the impression.

When unfounded persons tell the public that there is little or no commercial aviation in this country, they usually overlook actual service agencies. A few weeks ago, we mentioned the splendid record of the Johnson Aerial Service of Dayton, Ohio. We are glad, this week, to give the record of Tony Yackey, of Chicago who also

is known as W. A. Yackey. In of the Yackey Aerial Co. In 1925, his company carried 5463 passengers for short rides, took 66 long trips, traveled 176 students and made 5600 cross-country flights, some of which were in solo. They have about thirty service agencies operating throughout the world and have had no accidents of any kind in 1925. They claim never to have had an accident at the field by a civilian pilot. They have about forty planes in their hangars. And yet, it is said, again and again, that commercial aviation is not progressing in this country. If London, France or Italy could boast of a Johnson or a Yackey or any one of a dozen other agencies who are maintaining successful aerial service in this country, it would be heralded in all the world. The reason they do not exist is because AVIATION is considered a lot of those aerial service companies and pilots, and, when published, it will acquire some of those who have been belittling aerial service and pointing to the "let work of European airlines."

In a field which, for years, has been cluttered with words and words, and with material and equipment which is constantly changing hands, the few companies which AVIATION has received speak well for the integrity of AVIATION advertisements.

It is the policy of AVIATION, as it is of all reputable magazines, to carefully examine all advertisements, and to call the attention of the advertiser to what may be considered exaggerated or misleading claims, as well as to reject entirely certain classes of advertisements, including copy of individuals or companies whose reputation of reliability is in our good. While it is impossible to investigate in advance every advertising statement of every advertiser, reasonable care is taken to protect our readers.

When readers have made reasonable complaints to AVIATION on the score of poor service or misrepresentation, the advertiser has usually been glad to make good when the complaint was brought to his attention. The very few exceptions have been caused by the use of our advertising space.

We have received a particularly important and clear letter regarding some recent experience with advertisers, one of whom, however, in recent months has been excluded from the advertising columns of AVIATION. Management is the proud title of business and we hope that readers will take us promptly with AVIATION any case where, as the result of an AVIATION advertisement there is just cause for complaint—L.D.C.







## The New Curtiss O-1 "Falcon"

The Curtiss O-1 Falcon recently took first place in the Air Service competition for observation aeroplanes. The Falcon, powered with the old reliable Curtiss D-12 motor, carries a useful load of over 1700 pounds including pilot, observer, ordnance, camera, radio equipment and fuel — completely equipped to undertake the most difficult reconnaissance mission.

Intensive engineering in duralumin construction has made possible an exceptional performance. Even with the load required in an observation plane the Falcon becomes a competitor in the pursuit ship class. Having a climb of over 1200 feet per minute, its speed is 136 miles per hour at 15,000 feet and its absolute ceiling is more than 20,000 feet.

Air Services everywhere now recognize the importance of the two-place pursuit ship and the Falcon at once becomes a fore-runner of this new class.

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Garden City New York